SANYO

SANYO PORTABLE CASSETTE RECORDER
M 2528LU
SERVICE MANUAL

SPECIFICATIONS

Tape Speed	1-7/8 ips. ± 3%
Fast Forward Time	140 sec. (c-60 cassette)
Rewind Time	140 sec. (c-60 cassette)
Wow & Flutter	0.3 %RMS.
Terminal Impedance	MIC. 4.7 K ohm
	DIN INPUT 3.3 K ohm
	SIN OUT 4.7 K ohm
	EXT SP. 8 ohm
Closs Talk	Better than 60 dB (track to track)
Signal to noise ratio	Better than 40 dB
Hum & Noise	Less than −28 dBs
Output Power	2 W (maximum)
Frequency response	70 ~ 8,000 Hz
Power consumption	7 W
Current consumption	Play 150 mA (at VR min)
	F. Fwd 150 mA
	REW 120 mA
Frequency range	AM(MW)515 ~ 1605 kHz
	FM 88 ~ 108 mHz
	LW 150 ~ 305 kHz

PRIOR TO MECHANICAL ADJUSTMENT

The surfaces of the tape-contacting and revolving parts (pulleys and belts) should be kept clean. Wipe off grease and oil stains, using alcohol.

PINCH ROLLER ADJUSTMENT

1. Set the unit in the playback mode. (The pinch roller revolves.) Then measure the clearance between the pinch roller stoper and the pinch roller arm. It should be 0.4 to 0.8mm.
2. If it is necessary to adjust this clearance, bend the pinch roller stopper as illustrated.

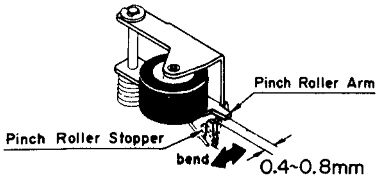


Fig.1

3. While keeping the unit in the playback mode. Measure the pinch roller contact pressure with a spring gauge (500gr. gauge). A pinch roller pressure of 300 ~ 370 gr. is required.

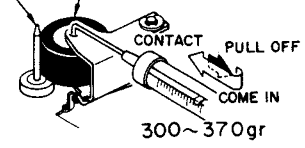


Fig. 2

4. Hook the spring gauge to the pinch roller and pull it off the capstan. Measure the pressure the moment when the pinch roller comes in contact again with the capstan (namely, when the pinch roller starts revolving).
5. To adjust the contact pressure, bend the spring. Change the spring with a new one, if necessary.

INSTRUCTIONS FOR CHASSIS INSTALLATION

1. When attaching the chassis to the cabinet, tighten the screws (A) and (B) in that order.

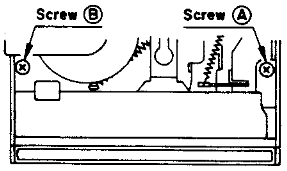


Fig. 3

2. There should be no clearance left between the cabinet and the capstan holder. (See illustration.)

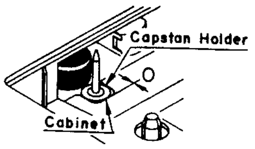


Fig. 4

3. Any clearance between the cabinet and the capstan holder may result in head dislocation. Attention is required.

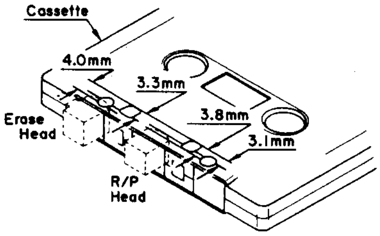


Fig. 5

HEAD POSITION ADJUSTMENT

1. Set the unit in the playback mode and measure the distances between the cassette fixing pins and each of the two heads. The distances to each head should be as follows:

From R/P head	3.1 ~ 3.8 mm
From erase head	3.3 ~ 4.0 mm

2. Check the head positions with the chassis mounted in the cabinet. For best results, use the jig specially prepared for this purpose.
3. After checking the head positions, dismount the chassis from the cabinet. Loosen the screws securing each head. After making necessary adjustment, tighten the screws.

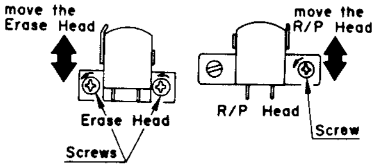


Fig. 6

4. Mount the chassis again in the cabinet. Re-check the head positions.
5. After the head positions have been adjusted, fix the screws securely by applying screw-lock paint.

NOTE: Use a cassette with reference lines drawn on it, as shown, to facilitate the adjustment of the head positions. (Use only a new cassette.)

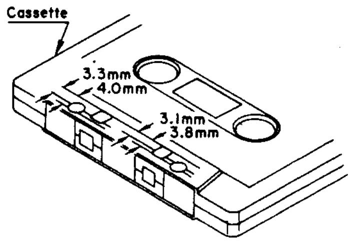


Fig. 7

ADJUSTMENT OF FLYWHEEL HEIGHT

1. Check to see that there is a clearance of 0.05 – 0.3 mm between the flywheel support and the flywheel. If necessary, adjust the clearnce.
2. The clearance can be adjusted to be within a standard range of 0.05 – 0.3mm by bending the flywheel support.

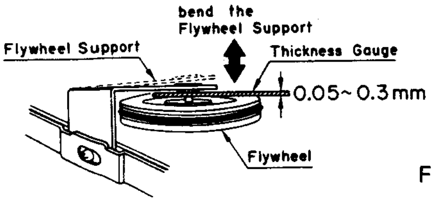

bend the Flywheel Support
Flywheel Support
Thickness Gauge
0.05~0.3mm
Flywheel

Fig. 8

ADJUSTMENT OF TAKE-UP TORQUE

1. Take off the cassette compartment cover and set the unit in the play mode.
2. Apply a torque gauge to the take-up reel, as shown, and measure the take-up torque, which should be 45 – 55 gr-cm.

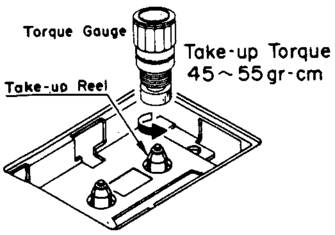

Torque Gauge
Take-up Torque
45~55gr-cm
Take-up Reel

Fig. 9

3. Adjust the take-up torque by turning the screw provided for this purpose. (See illustration.)

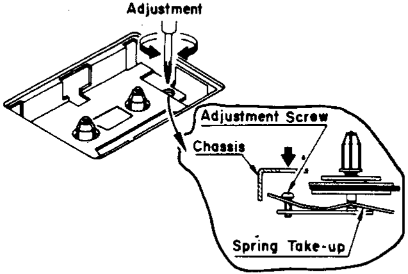

Adjustment
Adjustment Screw
Chassis
Spring Take-up

Fig. 10

4. After finishing with this adjustment, secure the screw by applying screw-lock.

TAPE SPEED ADJUSTMENT

1. Connect a frequency counter to the earphone jack as illustrated.
2. Use an 8-ohm dummy load when the counter is plugged to the earphone jack.
3. Mount a 3 KHz test tape on the unit and play it back. Turn the potentiometer (P103) of governor circuit and adjust it unil the counter reading becomes 3000 Hz ±3%.

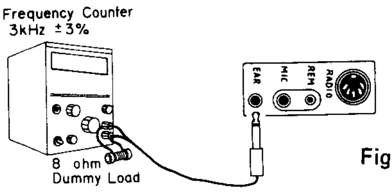
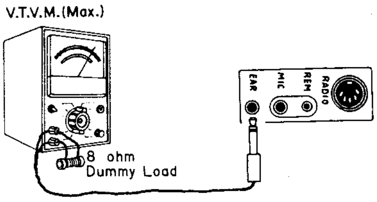

Frequency Counter
3kHz ±3%
EAR
MIC
REM
RADIO
8 ohm
Dummy Load

Fig. 11

HEAD AZIMUTH ADJUSTMENT

After the replacement or disassembly of the R/P heads, their head azimuth should be adjusted. Follow the instructions given below:

1. Connect a VTVM (vacuum tube voltage meter) to the earphone jack.


V.T.V.M.(Max.)
EAR
MIC
REM
RADIO
8 ohm
Dummy Load

j. 12

2. Use an 8-ohm dummy load when the VTVM is plugged to the earphone jack.
3. Mount a 8 KHz test tape on the unit. Turn the azimuth adjusting screw until the VTVM reading becomes maximum when the tape is being played back.
4. After adjustment is over, fix the azimuth adjusting screw by applying "screw lock"

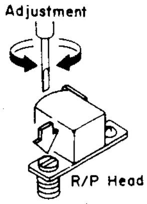

Adjustment
R/P Head

Fig. 13

ADJUSTMENT OF OSCILLATION FREQUENCY AND RECORDING BIAS

1. Set beat switch S104 to position 2.
2. Connect a VTVM to resistor R145 (10 ohms) at both its ends, as illustrated, and a frequency counter to the VTVM at the output terminal.
3. With the unit in the recording mode, set the frequency counter to 40 ± 0.1kHz by adjusting the core of oscillator transformer T101.
4. Adjust volume P102 until the VTVM needle points to 3.5mV

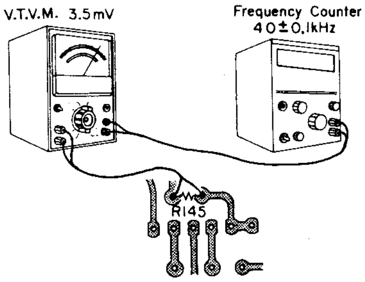

V.T.V.M. 3.5mV
Frequency Counter
40±0.1kHz
R145

Fig. 14

ADJUSTMENT OF DIN OUTPUT

1. Connect a VTVM and a dummy load of 470 k ohms to the DIN socket at terminals 3 (or 5) and 2, respectively.

2. Play back recorded test tape (TEAC MTT-112B 1kHz OdB) and adjust volume P101 so the VTVM stands at 1V.

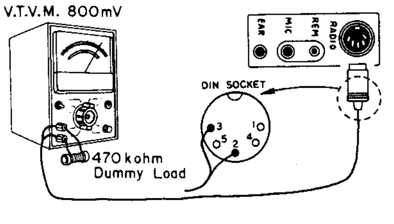
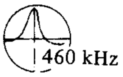
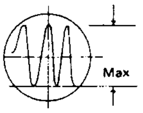
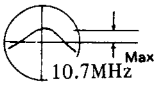
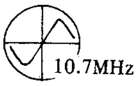
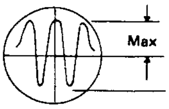
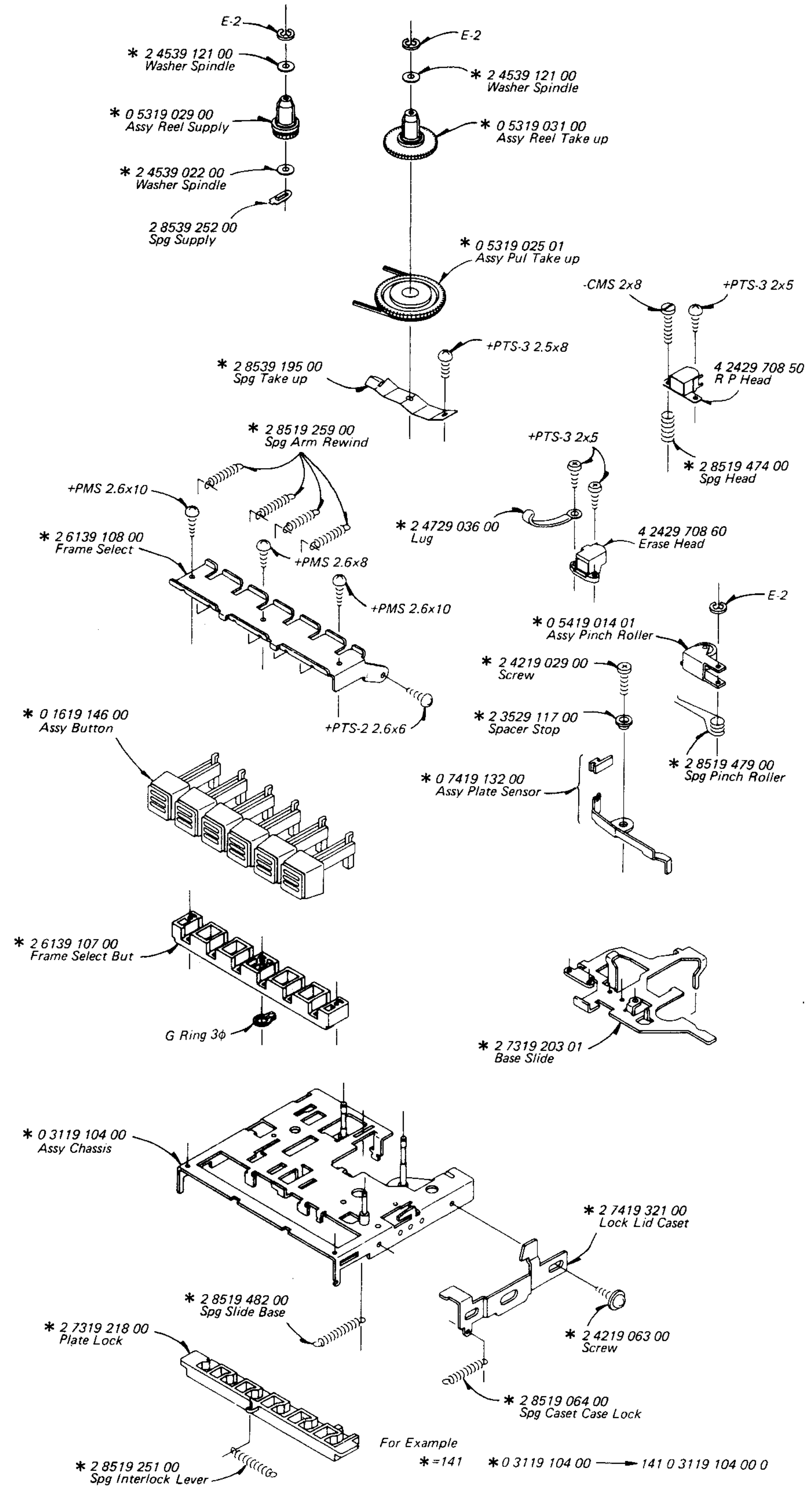

V.T.V.M. 800mV
EAR
MIC
REM
RADIO
DIN SOCKET
3
1
5
2
4
470 kohm
Dummy Load

Fig. 15

ADJUSTMENT (Tuner)

Band		Alignment	Freq. of SG	Tuning Freq. of dial	Instruments	Adjustment	Remarks
MW	Standard Test Frequency 400Hz and modulation 30% at AM and deviation 22.5 kHz at FM.	Calibration of IF for MW	460 KHz	Low End	Connect gene-scope (sweep generator and oscilloscope) at detector output (Test Point).	T3, T4 and T5	Adjust for symmetrical curve and maximum amplitude. 
		Calibration of tuning range	505 kHz		Connect 8-ohm dummy load, meter oscilloscope at Ext. speaker terminal.	T1	Adjust for sine-wave of 1kHz and maximum amplitude. 
			1650 kHz	High End		TC-5	
		Adjustment of tracking	600 kHz	600 KHz		BA-1 (MW Ant.Coil)	
			1400 kHz	1400 kHz		TC-3	
LW		Calibration of tuning range	145 kHz	Low End		T2	
			365 kHz	High End		TC-6	
		Adjustment of tracking	170 kHz	170 kHz		BA-1 (LW Ant.Coil)	
			310 kHz	310 kHz		TC-4	
FM		Calibration of IF	10.7MHz	Low End	Connect gene-scope ad detector output (Test Point).	Turn T8 (blue core) fully counterclockwise. T6, T7	Adjust for symmetrical curve and maximum amplitude. 
						T8 (blue core)	Adjust for S curve and maximum amplitude 
		Calibration of tuning range	87.2MHz		Connect 8-ohm dummy load, meter and oscilloscope at Ext. Speaker Terminal	L4	Adjust for sine-wave and maximum amplitude. 
			109.0MHz	High End		TC-2	
		Adjustment of tracking	90MHz	90MHz		L2	
			106MHz	106MHz		TC-1	

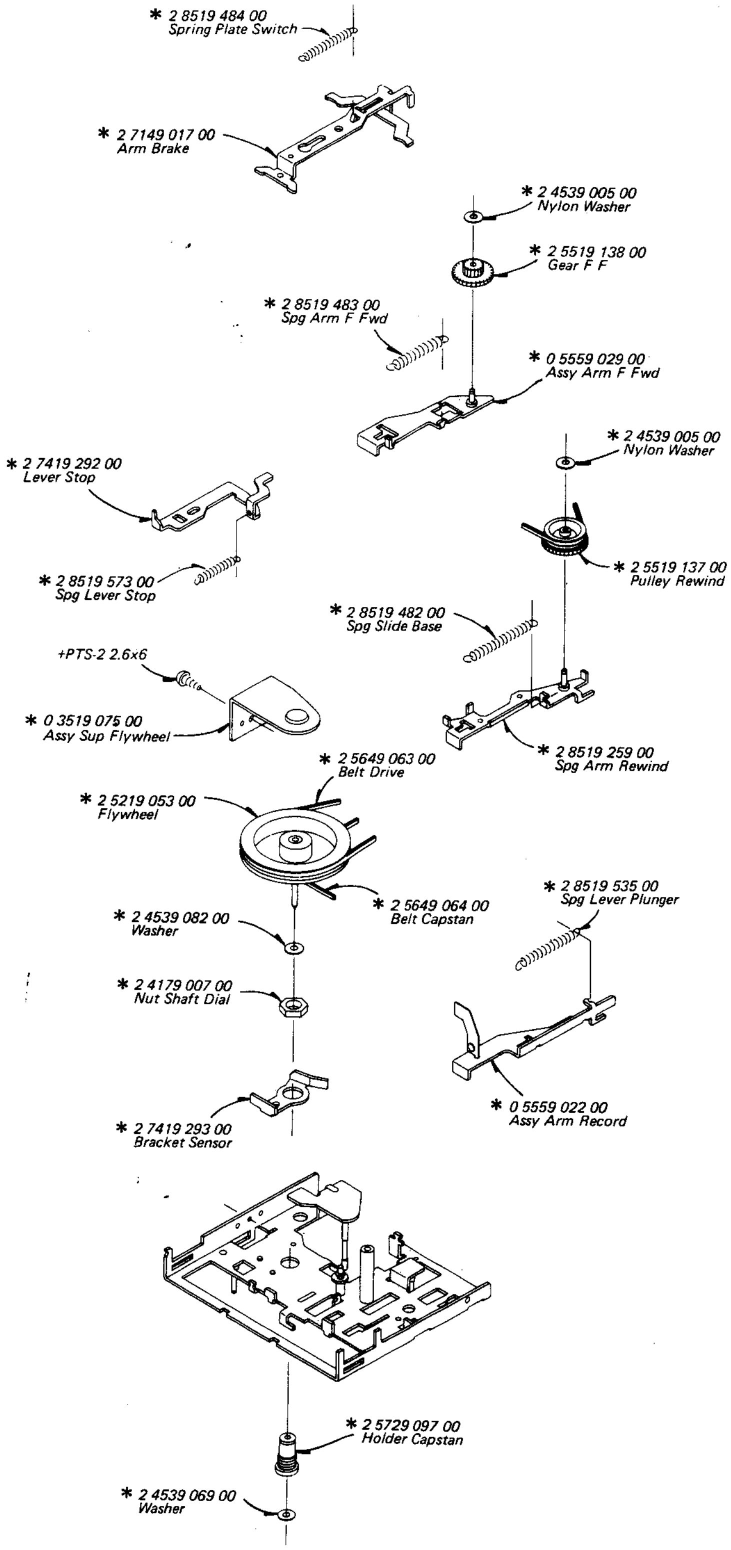
EXPLODED VIEW


E-2
✱ 2 4539 121 00
Washer Spindle
✱ 0 5319 029 00
Assy Reel Supply
✱ 2 4539 022 00
Washer Spindle
2 8539 252 00
Spg Supply
E-2
✱ 2 4539 121 00
Washer Spindle
✱ 0 5319 031 00
Assy Reel Take up
✱ 0 5319 025 01
Assy Pul Take up
-CMS 2x8
+PTS-3 2x5
+PTS-3 2.5x8
✱ 2 8539 195 00
Spg Take up
4 2429 708 50
R P Head
✱ 2 8519 259 00
Spg Arm Rewind
+PTS-3 2x5
✱ 2 8519 474 00
Spg Head
+PMS 2.6x10
✱ 2 6139 108 00
Frame Select
✱ 2 4729 036 00
Lug
4 2429 708 60
Erase Head
+PMS 2.6x8
+PMS 2.6x10
E-2
✱ 0 5419 014 01
Assy Pinch Roller
✱ 2 4219 029 00
Screw
✱ 0 1619 146 00
Assy Button
+PTS-2 2.6x6
✱ 2 3529 117 00
Spacer Stop
✱ 2 8519 479 00
Spg Pinch Roller
✱ 0 7419 132 00
Assy Plate Sensor
✱ 2 6139 107 00
Frame Select But
G Ring 3ϕ
✱ 2 7319 203 01
Base Slide
✱ 0 3119 104 00
Assy Chassis
✱ 2 7419 321 00
Lock Lid Caset
✱ 2 8519 482 00
Spg Slide Base
✱ 2 7319 218 00
Plate Lock
✱ 2 4219 063 00
Screw
✱ 2 8519 064 00
Spg Caset Case Lock
✱ 2 8519 251 00
Spg Interlock Lever

For Example

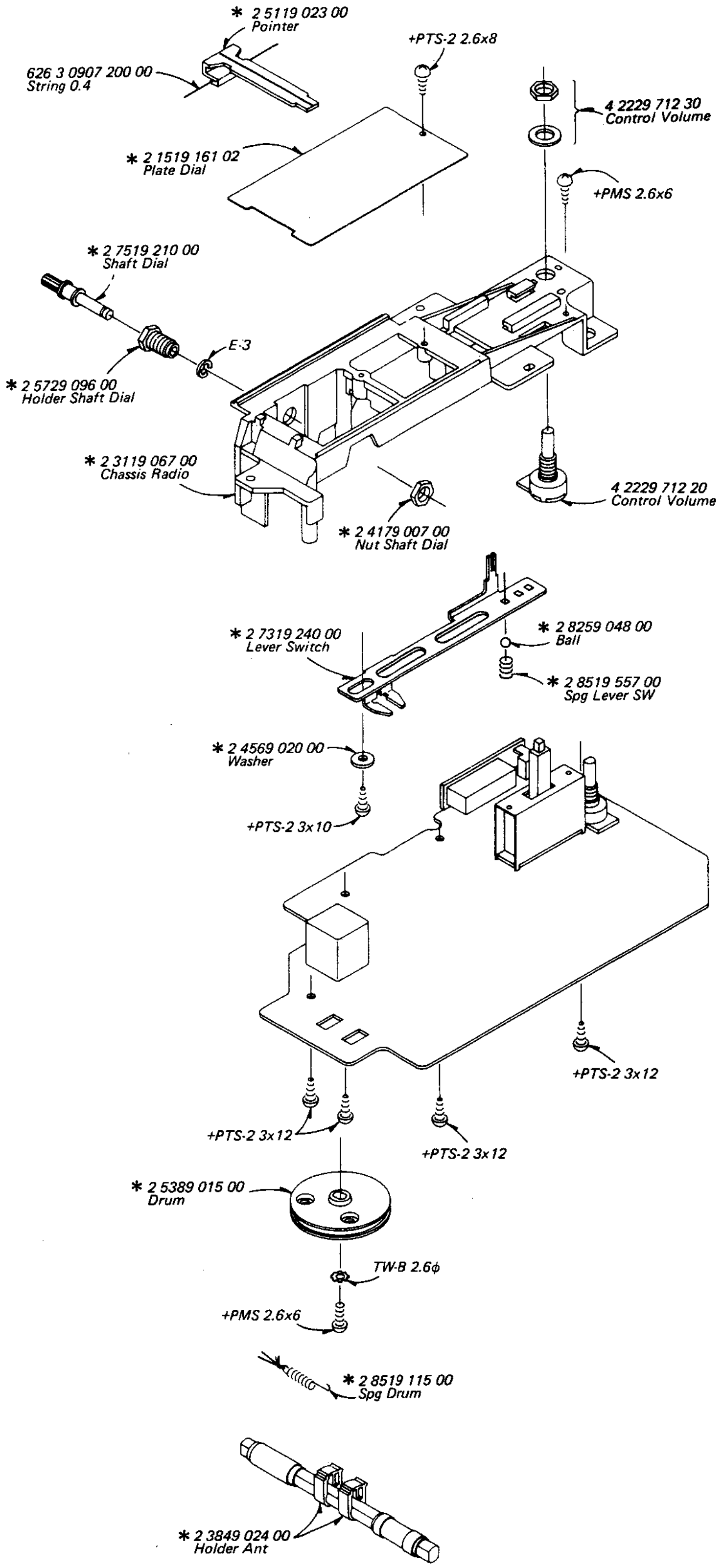
✱=141 ✱0 3119 104 00 ——→ 141 0 3119 104 00 0

EXPLODED VIEW

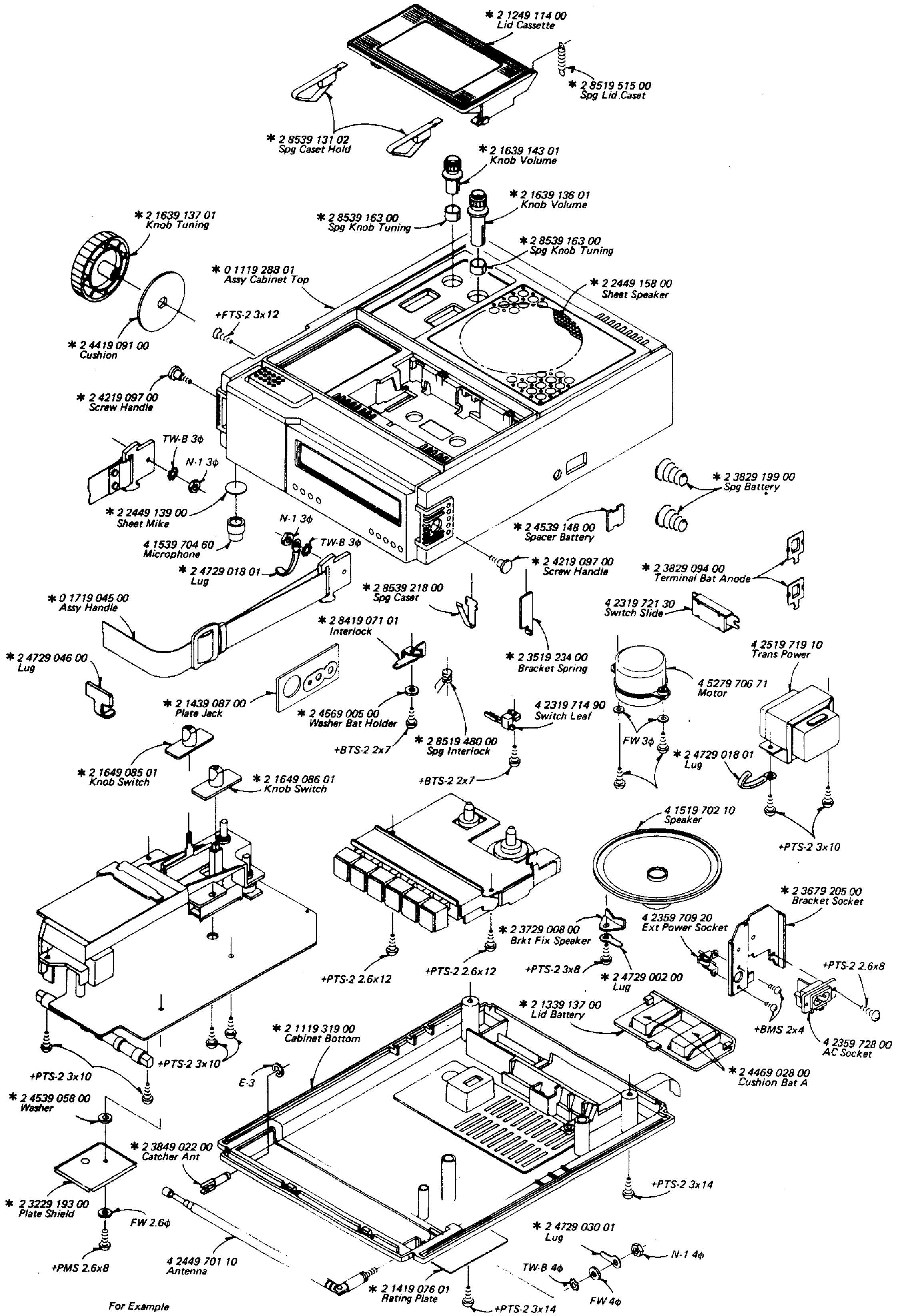


* 2 8519 484 00
Spring Plate Switch
* 2 7149 017 00
Arm Brake
* 2 4539 005 00
Nylon Washer
* 2 5519 138 00
Gear F F
* 2 8519 483 00
Spg Arm F Fwd
* 0 5559 029 00
Assy Arm F Fwd
* 2 4539 005 00
Nylon Washer
* 2 7419 292 00
Lever Stop
* 2 5519 137 00
Pulley Rewind
* 2 8519 573 00
Spg Lever Stop
* 2 8519 482 00
Spg Slide Base
+PTS-2 2.6x6
* 0 3519 075 00
Assy Sup Flywheel
* 2 8519 259 00
Spg Arm Rewind
* 2 5649 063 00
Belt Drive
* 2 5219 053 00
Flywheel
* 2 8519 535 00
Spg Lever Plunger
* 2 5649 064 00
Belt Capstan
* 2 4539 082 00
Washer
* 2 4179 007 00
Nut Shaft Dial
* 0 5559 022 00
Assy Arm Record
* 2 7419 293 00
Bracket Sensor
* 2 5729 097 00
Holder Capstan
* 2 4539 069 00
Washer

EXPLODED VIEW


✱ 2 5119 023 00
Pointer
626 3 0907 200 00
String 0.4
+PTS-2 2.6x8
4 2229 712 30
Control Volume
✱ 2 1519 161 02
Plate Dial
+PMS 2.6x6
✱ 2 7519 210 00
Shaft Dial
E-3
✱ 2 5729 096 00
Holder Shaft Dial
✱ 2 3119 067 00
Chassis Radio
4 2229 712 20
Control Volume
✱ 2 4179 007 00
Nut Shaft Dial
✱ 2 7319 240 00
Lever Switch
✱ 2 8259 048 00
Ball
✱ 2 8519 557 00
Spg Lever SW
✱ 2 4569 020 00
Washer
+PTS-2 3x10
+PTS-2 3x12
+PTS-2 3x12
+PTS-2 3x12
✱ 2 5389 015 00
Drum
TW-B 2.6ϕ
+PMS 2.6x6
✱ 2 8519 115 00
Spg Drum
✱ 2 3849 024 00
Holder Ant

EXPLODED VIEW


✱ 2 1249 114 00
Lid Cassette
✱ 2 8519 515 00
Spg Lid Caset
✱ 2 8539 131 02
Spg Caset Hold
✱ 2 1639 143 01
Knob Volume
✱ 2 1639 136 01
Knob Volume
✱ 2 1639 137 01
Knob Tuning
✱ 2 8539 163 00
Spg Knob Tuning
✱ 2 8539 163 00
Spg Knob Tuning
✱ 0 1119 288 01
Assy Cabinet Top
✱ 2 2449 158 00
Sheet Speaker
+FTS-2 3x12
✱ 2 4419 091 00
Cushion
✱ 2 4219 097 00
Screw Handle
TW-B 3ϕ
N-1 3ϕ
✱ 2 2449 139 00
Sheet Mike
N-1 3ϕ
TW-B 3ϕ
4 1539 704 60
Microphone
✱ 2 4729 018 01
Lug
✱ 2 3829 199 00
Spg Battery
✱ 2 4539 148 00
Spacer Battery
✱ 2 4219 097 00
Screw Handle
✱ 2 3829 094 00
Terminal Bat Anode
✱ 0 1719 045 00
Assy Handle
✱ 2 8539 218 00
Spg Caset
✱ 2 8419 071 01
Interlock
4 2319 721 30
Switch Slide
✱ 2 3519 234 00
Bracket Spring
4 2519 719 10
Trans Power
✱ 2 4729 046 00
Lug
4 5279 706 71
Motor
✱ 2 1439 087 00
Plate Jack
✱ 2 4569 005 00
Washer Bat Holder
4 2319 714 90
Switch Leaf
FW 3ϕ
✱ 2 4729 018 01
Lug
+BTS-2 2x7
✱ 2 8519 480 00
Spg Interlock
+BTS-2 2x7
✱ 2 1649 085 01
Knob Switch
✱ 2 1649 086 01
Knob Switch
4 1519 702 10
Speaker
+PTS-2 3x10
✱ 2 3679 205 00
Bracket Socket
✱ 2 3729 008 00
Brkt Fix Speaker
4 2359 709 20
Ext Power Socket
+PTS-2 2.6x12
+PTS-2 2.6x12
+PTS-2 3x8
✱ 2 4729 002 00
Lug
+PTS-2 2.6x8
✱ 2 1339 137 00
Lid Battery
+BMS 2x4
4 2359 728 00
AC Socket
✱ 2 1119 319 00
Cabinet Bottom
+PTS-2 3x10
+PTS-2 3x10
E-3
✱ 2 4469 028 00
Cushion Bat A
✱ 2 4539 058 00
Washer
✱ 2 3849 022 00
Catcher Ant
+PTS-2 3x14
✱ 2 3229 193 00
Plate Shield
FW 2.6ϕ
+PMS 2.6x8
4 2449 701 10
Antenna
✱ 2 4729 030 01
Lug
N-1 4ϕ
TW-B 4ϕ
FW 4ϕ
✱ 2 1419 076 01
Rating Plate
+PTS-2 3x14

For Example
✱ =141   ✱ 2 1119 319 00 ⟶ 141 2 1119 319 00 0

PARTS LIST

MECHANISM

Key No.	Part No.	Description	Q'ty
	141 0 3119 10400	Chassis Assy	1
	4 2429 70860	Erase Head	1
	4 2429 70850	R/P Head	1
	141 0 1619 14600	Button Assy	6
	141 0 3519 07500	Flywheel Support Assy	1
	141 0 5319 02501	Pulley Assy, Take Up	1
	141 0 5319 02900	Reel Assy, Supply	1
	141 0 5319 03100	Reel Assy, Take Up	1
	141 0 5419 01401	Pinch Roll Assy	1
	141 0 5559 02200	Arm Assy, Rec	1
	141 0 5559 02800	Arm Assy, Rewind	1
	141 0 5559 02900	Arm Assy, F. FWD	1
	141 0 7419 13200	Plate Assy, Senser	1
	141 2 3529 11700	Spacer, Stop	1
	141 2 4179 00700	Nut, Shaft Dial	1
	141 2 4219 02900	Screw	1
	141 2 4219 06300	Screw	1
	141 2 4539 06900	Washer	1
	141 2 4539 08200	Washer	1
	141 2 4729 03600	Lug	1
	141 0 5219 02600	Flywheel Assy	1
	141 2 5649 06300	Belt, Drive	1
	141 2 5649 06400	Belt, Capstan	1
	141 2 5729 09700	Holder, Capstan	1
	141 2 6139 10700	Frame, Select Button	1
	141 2 6139 10800	Frame, Select	1
	141 2 7149 01700	Arm, Brake	1
	141 2 7319 20301	Base, Slide	1
	141 2 7319 21800	Plate, Lock	1
	141 2 7419 29200	Lever, Stop	1
	141 2 7419 29300	Bracket Senser	1
	141 2 7419 32100	Lock Lid Cassette	1
	141 2 8519 06400	Spring, Cassette Case Lock	1
	141 2 8519 25100	Spring, Interlock Lever	1
	141 2 8519 25900	Spring Arm Rewind	4
	141 2 8519 47400	Spring Head	1
	141 2 8519 57300	Spring, Lever Stop	1
	141 2 8519 47900	Spring, Pinch Roller	1
	141 2 8519 48200	Spring, Slide Base	1
	141 2 8519 48200	Spring, Slide Base	1
	141 2 8519 48300	Spring, Arm F. FWD	1
	141 2 8519 53500	Spring, Lever Plunger	1
	141 2 8539 19500	Spring, Take Up	1
	141 2 8539 25200	Spring, Supply	1
	141 2 8519 48400	Spring, Plate Switch	1

AMP, TUNER PCB ASSY

Key No.	Part No.	Description	Q'ty
	4 1329 72450	AMP PCB Assy	1
	4 2579 70470	Bar Antenna	1
	4 2539 70210	Bead Ferrite	1
	4 2539 70230	Filter Ceramic	1
C1	CC220501KD00C	Ceramic 22pF 500V ±10%	1
C2	CC101500KD00C	Ceramic 100pF 50V ±10%	1
C3	CC150500KD00C	Ceramic 15pF 50V ±10%	1
C4	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C5	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C6	CC103250ZG00C	Ceramic 0.01MF 25V +80–20%	1
C7	CC150500JD00C	Ceramic 15pF 50V ±5%	1
C8	CC47A500CD00C	Ceramic 4.7PF 50V ±0.2PF	1
C9	CC47A500CCH0C	Ceramic 4.7pF 50V ±0.2pF	1
C10	CC330500KD00C	Ceramic 33pF 50V ±10%	1
C11	CC471500KE00C	Ceramic 470pF 50V ±10%	1
C12	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C13	CC150500JCH0C	Ceramic 15pF 50V ±5%	1
C14	CC332500KE00C	Ceramic 0.0033MF 50V ±10%	1
C15	CC30A500CCH0C	Ceramic 3pF 50V ±0.2pF	1
C16	CC102500KE00C	Ceramic 0.001MF 50V ±10%	1
C17	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C18	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C19	CC102500KE00C	Ceramic 0.001MF 50V ±10%	1
C20	CD47663A0000V	Electrolytic 47MF 6.3V	1
C21	CC33A500JD00C	Ceramic 3.3pF 50V ±5%	1
C22	CC100500JD00C	Ceramic 10pF 50V ±5%	1
C23	CC103250ZG00C	Ceramic 0.01MF 25V +80–20%	1
C24	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1

AMP, TUNER PCB ASSY

Key No.	Part No.	Description	Q'ty
C25	CS291500J000V	Styrol 290pF 50V ±5%	1
C26	CC103250ZG00C	Ceramic 0.01MF 25V +80–20%	1
C27	CC100500JD00C	Ceramic 10pF 50V ±5%	1
C28	CS181500J000V	Styrol 180pF 50V ±5%	1
C29	CC820500JD00C	Ceramic 82 pF 50V ± 5%	1
C30	CC27A500CD00C	Ceramic 2.7pF 50V ±0.2pF	1
C31	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C32	CM223500K00SV	Mylar 0.022MF 50V ± 10%	1
C33	CM223500K00SV	Mylar 0.022MF 50V ± 10%	1
C34	CC103250ZG00C	Ceramic 0.01MF 25V +80–20%	1
C35	CD4751000000V	Electrolytic 4.7MF 10V	1
C36	CC223250ZG00C	Ceramic 0.022MF 25V +80–20%	1
C37	CC330500JD00C	Ceramic 33pF 50V ± 5%	1
C38	CC103250ZG00C	Ceramic 0.01MF 25V +80–20%	1
C39	CM103500K00SV	Mylar 0.01MF 50V ± 10%	1
C40	CD4751000000V	Electrolytic 4.7MF 10V	1
C41	CC102500KE00C	Ceramic 0.001MF 50V ± 10%	1
C42	CC102500KE00C	Ceramic 0.001MF 50V ± 10%	1
C43	CM153500K00SV	Mylar 0.015MF 50V ± 10%	1
C44	CC473250ZG00C	Ceramic 0.047MF 25V +80–20%	1
C45	CM473500K00SV	Mylar 0.047MF 50V ± 10%	1
C46	CD4751000000V	Electrolytic 4.7MF 10V	1
C47	CM153500K00SV	Mylar 0.015MF 50V ± 10%	1
C48	CM153500K00SV	Mylar 0.015MF 50V ± 10%	1
C49	CA105100X000V	Alsicon 1MF 10V +40–20%	1
C50	CM472500K00SV	Mylar 0.0047MF 50V ± 10%	1
C51	CD4771000000V	Electrolytic 470MF 10V	1
C52	CD4771000000V	Electrolytic 470MF 10V	1
C53	CC101500KD00C	Ceramic 100pF 50V ± 10%	1
C101	CM823500K00SV	Mylar 0.082MF 50V ± 10%	1
C102	CD1051000000V	Electrolytic 1MF 10V	1
C103	CM473500K00SV	Mylar 0.047MF 50V ± 10%	1
C104	CC122500KE00C	Ceramic 0.0012MF 50V ± 10%	1
C105	CC561500KE00C	Ceramic 560pF 50V ± 10%	1
C106	CD4761000000V	Electrolytic 47MF 10V	1
C107	CD47663A0000H	Electrolytic 47MF 6.3V	1
C108	CC221500KE00C	Ceramic 220pF 50V ± 10%	1
C109	CM122500K00SV	Mylar 0.0012MF 50V ± 10%	1
C110	CD4761000000V	Electrolytic 47MF 10V	1
C111	CM393500K00SV	Mylar 0.039MF 50V ± 10%	1
C112	CD1061000000V	Electrolytic 10MF 10V	1
C113	CD1061000000V	Electrolytic 10MF 10V	1
C114	CD1051000000V	Electrolytic 1MF 10V	1
C115	CC471500KE00C	Ceramic 470pF 50V ± 10%	1
C116	CC102500KE00C	Ceramic 0.001MF 50V ± 10%	1
C117	CD10763A0000V	Electrolytic 100MF 6.3V	1
C118	CD1051000000V	Electrolytic 1MF 10V	1
C119	CM332500K00SV	Mylar 0.0033MF 50V ± 10%	1
C120	CM104500K00SV	Mylar 0.1MF 50V ±10%	1
C121	CD1051000000V	Electrolytic 1MF 10V	1
C122	CM332500K00SV	Mylar 0.0033MF 50V ±10%	1
C123	CD22663A0000V	Electrolytic 22MF 6.3V	1
C124	CC331500KE00C	Ceramic 330pF 50V ±10%	1
C125	CD10763A0000V	Electrolytic 100MF 6.3V	1
C126	CD22663A0000V	Electrolytic 22MF 6.3V	1
C127	CC331500KE00C	Ceramic 330PF 50V ±10%	1
C128	CD33763A0000V	Electrolytic 330MF 6.3V	1
C129	CD2271000000V	Electrolytic 220MF 10V	1
C130	CD33763A0000V	Electrolytic 330MF 6.3V	1
C131	CD4741000000V	Electrolytic 0.47MF 10V	1
C132	CD33763A0000V	Electrolytic 330MF 6.3V	1
C133	CD47763A0000V	Electrolytic 470MF 6.3V	1
C134	CD4741000000V	Electrolytic 0.47MF 10V	1
C135	CM562500K00SV	Mylar 0.0056MF 50V ±10%	1
C136	CD47763A0000V	Electrolytic 470MF 6.3V	1
C137	CD4771000000V	Electrolytic 470MF 10V	1
C138	CD4771000000V	Electrolytic 470MF 10V	1
C139	CM153500K00SV	Mylar 0.015MF 50V ±10%	1
C140	CM332500K00SV	Mylar 0.0033MF 50V ±10%	1
C141	CC331500KE00C	Ceramic 330PF 50V ±10%	1
C142	CM562101J00NV	Mylar 0.0056MF 100V ±5%	1
C143	CM333500K00SV	Mylar 0.033MF 50V ±10%	1
C144	CM472500K00SV	Mylar 0.0047MF 50V ±10%	1
C145	CM393500K00SV	Mylar 0.039MF 50V ±10%	1
C146	CM472500K00SV	Mylar 0.0047MF 50V ±10%	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

PARTS LIST

AMP, TUNER PCB ASSY

Key No.	Part No.	Description	Q'ty
C147	CM393500K00SV	Mylar 0.039MF 50V ±10%	1
C148	CD1071000000V	Electrolytic 100MF 10V	1
C149	CC103500KE00C	Ceramic 0.01MF 50V ±10%	1
C150	CC103500KE00C	Ceramic 0.01MF 50V ±10%	1
C151	CC103500KE00C	Ceramic 0.01MF 50V ±10%	1
C152	CC103500KE00C	Ceramic 0.01MF 50V ±10%	1
C153	CD2281000000V	Electrolytic 2200MF 10V	1
C154	CD1071000000V	Electrolytic 100MF 10V	1
C155	CD1071000000V	Electrolytic 100MF 10V	1
C156	CC223500KE00C	Ceramic 0.022MF 50V ±10%	1
C157	CA224100K000V	Alsicon 0.22MF 10V ±10%	1
C160	CC223500KE00C	Ceramic 0.022MF 50V ±10%	1
D1	205 5 9040 44210	Diode DS 442	1
D2	202 5 9110 18820	Diode IS 188	1
D3	202 5 1000 55310	Diode 1S 553	1
D4	202 5 9110 18820	Diode 1S 188	1
D5	202 5 9110 18820	Diode 1S 188	1
D6	202 5 9110 18820	Diode 1S 188	1
D101	202 5 9530 44810	Diode DS 188	1
D102	202 5 9410 01010	Diode 10D-1	1
D103	202 5 9410 01010	Diode 10D-1	1
D104	202 5 9410 01010	Diode 10D-1	1
D105	202 5 9410 01010	Diode 10D-1	1
D201	205 5 9050 44310	Diode DS443	1
L1	4 2579 70014	Antenna Coil	1
L2	4 2599 70144	RF Coil	1
L3	4 2599 70053	Trap Coil	1
L4	4 2589 71000	OSC Coil	1
L101	4 2559 70030	Coil	1
L102	4 2559 70030	Coil	1
L201	4 2539 70150	RF Choke	1
PVC1	4 2249 70420	PVC	1
P1	4 2229 72060	Potentiometer	1
Q1	203 5 4500 66850	Transistor 2SC 668	1
Q2	203 5 5500 93040	Transistor 2SC 930	1
Q3	203 5 5500 93040	Transistor 2SC 930	1
Q4	203 5 5500 92950	Transistor 2SC 929	1
Q5	206 5 0081 20113	IC LA 1201-C	1
Q101	203 5 5100 53660	Transistor 2SC 536	1
Q102	206 5 0814 10012	IC LA-4100S	1
Q103	206 5 0814 10012	IC LA-4100S	1
Q104	203 5 6900 40060	Transistor 2SD400F	1
Q105	203 5 6900 40060	Transistor 2SD400F	1
Q106	4 2069 70070	TA7137P-A	1
Q201	203 5 0200 18590	Transistor 2SB 185P	1
Q202	203 5 6900 40060	Transistor 2SD400F	1
R1	RD124251KV000	Carbon ¼W 120K ohm ±10%	1
R2	RD331251KV000	Carbon ¼W 330 ohm ±10%	1
R3	RD331251KV000	Carbon ¼W 330 ohm ±10%	1
R4	RD392251KV000	Carbon ¼W 3.9K ohm ±10%	1
R5	RD104251KV000	Carbon ¼W 100K ohm ±10%	1
R6	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R7	RD104251KV000	Carbon ¼W 100K ohm ±10%	1
R8	RD471251KV000	Carbon ¼W 470 ohm ±10%	1
R9	RD331251KV000	Carbon ¼W 330 ohm ±10%	1
R10	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R11	RD331251KV000	Carbon ¼W 330 ohm ±10%	1
R12	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R13	RD392251KV000	Carbon ¼W 3.9K ohm ±10%	1
R14	RD220251KV000	Carbon ¼W 22 ohm ±10%	1
R15	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R16	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R17	RD154251KV000	Carbon ¼W 150K ohm ±10%	1
R18	RD274251KV000	Carbon ¼W 270K ohm ±10%	1
R19	RD681251KV000	Carbon ¼W 680 ohm ±10%	1
R20	RD222251KV000	Carbon ¼W 2.2K ohm ±10%	1
R21	RD152251KV000	Carbon ¼W 1.5K ohm ±10%	1
R22	RD392251KV000	Carbon ¼W 3.9K ohm ±10%	1
R23	RD333251KV000	Carbon ¼W 33K ohm ±10%	1
R24	RD472251KV000	Carbon ¼W 4.7K ohm ±10%	1
R25	RD103251KV000	Carbon ¼W 10K ohm ±10%	1
R26	RD681251KV000	Carbon ¼W 680 ohm ±10%	1
R27	RD101251KV000	Carbon ¼W 100 ohm ±10%	1
R28	RD102251KV000	Carbon ¼W 1K ohm ±10%	1
R29	RD102251KV000	Carbon ¼W 1K ohm ±10%	1
R30	RD472251KV000	Carbon ¼W 4.7K ohm ±10%	1

AMP TUNER PCB ASSY

Key No.	Part No.	Description	Q'ty
R31	RD472251KV000	Carbon ¼W 4.7K ohm ±10%	1
R32	RD102251KV000	Carbon ¼W 1K ohm ±10%	1
R33	RD334251KV000	Carbon ¼W 330K ohm ±10%	1
R34	RD105251KH000	Carbon ¼W 1M ohm ±10%	1
R35	RD273251KV000	Carbon ¼W 27K ohm ±10%	1
R36	RD473251KV000	Carbon ¼W 47K ohm ±10%	1
R37	RD270251KV000	Carbon ¼W 27 ohm ±10%	1
R38	RD560251KV000	Carbon ¼W 56 ohm ±10%	1
R101	RD332251JV000	Carbon ¼W 3.3K ohm ±5%	1
R102	RD332251JH000	Carbon ¼W 3.3K ohm ±5%	1
R103	RD563251JV000	Carbon ¼W 56K ohm ±5%	1
R104	RD472251JV000	Carbon ¼W 4.7K ohm ±5%	1
R105	RD472251JH000	Carbon ¼W 4.7K ohm ±5%	1
R106	RD272251JV000	Carbon ¼W 2.7K ohm ±5%	1
R107	RD152251JV000	Carbon ¼W 1.5K ohm ±5%	1
R108	RD152251JV000	Carbon ¼W 1.5K ohm ±5%	1
R109	RD273251JV000	Carbon ¼W 27K ohm ±5%	1
R110	RD102251JV000	Carbon ¼W 1K ohm ±5%	1
R111	RD473251JV000	Carbon ¼W 47K ohm ±5%	1
R112	RD474251JV000	Carbon ¼W 470K ohm ±5%	1
R113	RD274251JV000	Carbon ¼W 270K ohm ±5%	1
R114	RD270251JV000	Carbon ¼W 27 ohm ±5%	1
R115	RD332251JV000	Carbon ¼W 3.3K ohm ±5%	1
R116	RD332251JV000	Carbon ¼W 3.3K ohm ±5%	1
R117	RD103251JV000	Carbon ¼W 10K ohm ±5%	1
R118	RD221251JV000	Carbon ¼W 220 ohm ±5%	1
R119	RD223251JV000	Carbon ¼W 22K ohm ±5%	1
R120	RD221251JH000	Carbon ¼W 220 ohm ±5%	1
R121	RD182251JV000	Carbon ¼W 1.8K ohm ±5%	1
R122	RD56A251JV000	Carbon ¼W 5.6 ohm ±5%	1
R123	RD56A251JV000	Carbon ¼W 5.6 ohm ±5%	1
R124	RD182251JV000	Carbon ¼W 1.8K ohm ±5%	1
R125	RD472251JV000	Carbon ¼W 4.7K ohm ±5%	1
R126	RD221251JV000	Carbon ¼W 220 ohm ±5%	1
R127	RD182251JV000	Carbon ¼W 1.8K ohm ±5%	1
R128	RD100251JV000	Carbon ¼W 10 ohm ±5%	1
R129	RD56A251JV000	Carbon ¼W 5.6 ohm ±5%	1
R130	RD56A251JV000	Carbon ¼W 5.6 ohm ±5%	1
R131	RD223251JV000	Carbon ¼W 22K ohm ±5%	1
R132	RD223251JV000	Carbon ¼W 22K ohm ±5%	1
R133	RD82A251JV000	Carbon ¼W 8.2 ohm ±5%	1
R134	RD271251JV000	Carbon ¼W 270 ohm ±5%	1
R135	RD27A251JV000	Carbon ¼W 2.7K ohm ±5%	1
R136	RD56A251JV000	Carbon ¼W 5.6 ohm ±5%	1
R137	RD271251JV000	Carbon ¼W 270 ohm ±5%	1
R138	RD221251JV000	Carbon ¼W 220 ohm ±5%	1
R139	RD181251JV000	Carbon ¼W 180 ohm ±5%	1
R140	RD391251JV000	Carbon ¼W 390 ohm ±5%	1
R141	RD271251JV000	Carbon ¼W 270 ohm ±5%	1
R142	RD125251JH000	Carbon ¼W 1.2M ohm ±5%	1
R143	RD152251JV000	Carbon ¼W 1.5K ohm ±5%	1
R144	RD105251JH000	Carbon ¼W 1M ohm ±5%	1
R145	RD100251JV000	Carbon ¼W 10 ohm ±5%	1
SW1	4 2319 72200	Switch Slide	1
TC1	4 2249 70350	Trimmer	1
TC2	4 2249 70350	Trimmer	1
TP1	111 2 6219 11027	Test Point B	1
TP2	111 2 6219 11027	Test Point B	1
TP3	111 2 6219 11027	Test Point B	1
TP4	111 2 6219 11027	Test Point B	1
TP5	111 2 6219 11027	Test Point B	1
TP6	111 2 6219 11027	Test Point B	1
T1	4 2589 71090	Osc Trans	1
T2	4 2589 70430	Osc Trans	1
T3	4 2569 70590	IFT	1
T4	4 2569 70600	IFT	1
T5	4 2569 70420	IFT	1
T6	4 2569 70300	IFT	1
T7	4 2569 70320	IFT	1
T8	4 2569 70330	IFT	1
T101	4 2589 71100	Osc Trans	1
	141 2 3849 02400	Holder Ant	2
	4 2369 707400	Pin RT	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

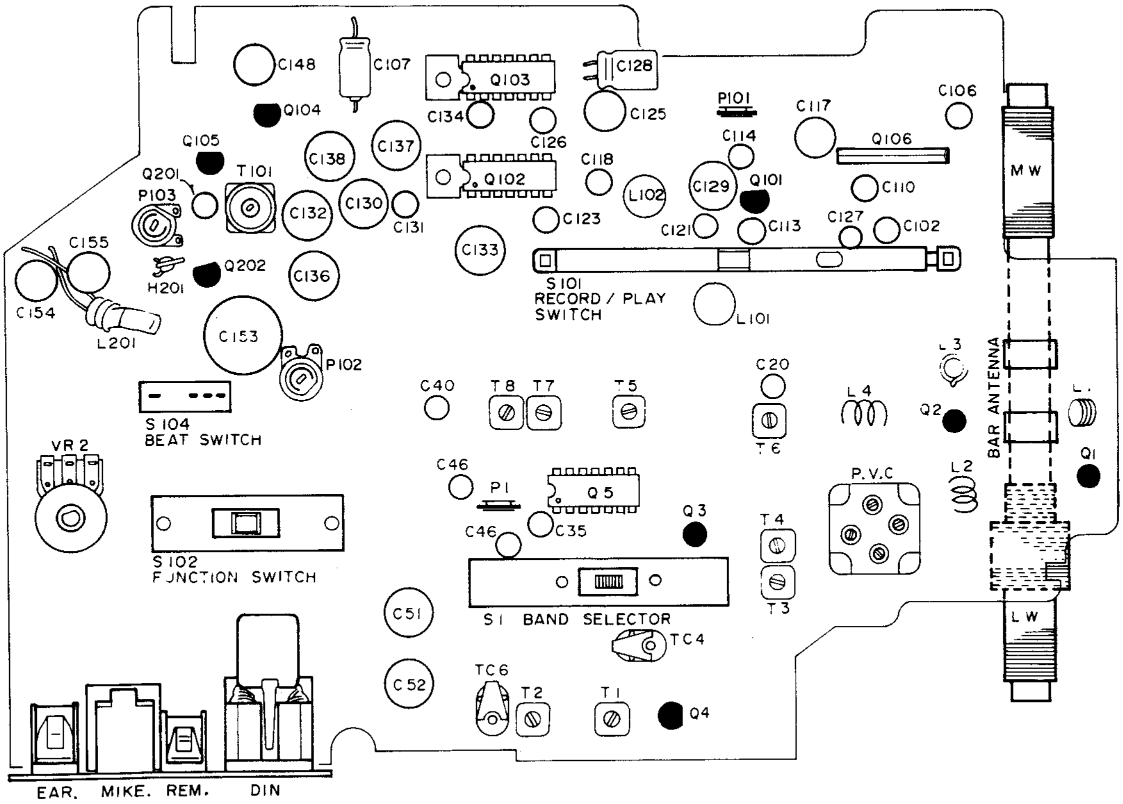
PARTS LIST

Key No.	Part No.	Description	Q'ty
AMP, TUNER PCB ASSY			
	4 2319 72060	Switch Slide	1
	4 2229 71230	Control Volume	1
	4 2319 72060	Switch Slide	1
	4 2359 71790	Jack IP	1
	4 2359 71390	Jack 1P	1
	4 2359 71780	Jack 1P	1
	4 2319 72190	Switch Slide	1
	4 2359 71550	Din Socket 5P	1
	4 2319 71900	Switch Slide	1
	4 2359 70910	Holder Fuse	1
	4 2349 70140	Fuse	1
	204 5 9000 00650	SDT 65	1
	4 2319 71990	Switch Slide	1
	4 2229 72160	Potentiometer	1
	4 2229 72070	Potentiometer	1
	4 2229 72300	Potentiometer	1
	101 3 1302 60611	Screw Pan Hd. M2.6 x 6	1
	101 3 1302 60611	Screw Pan Hd. M2.6 x 6	1
	101 3 1302 60411	Screw Pan Hd. M2.6 x 4	1
	4 2229 71220	Control Volume	1
	112 3 1303 00040	Ring M3.0	1
	141 2 1519 16102	Plate Dial	1
	141 2 3119 06700	Chassis Radio	1
	141 2 3229 19300	Plate Shield	1
	141 2 3829 08300	Terminal Name Plate	1
	141 2 4179 00700	Nut Shaft Dial	1
	141 2 4539 06300	Washer	4
	141 2 4569 02000	Washer	1
	141 2 5119 02300	Pointer	1
	141 2 5389 01500	Drum	1
	141 2 5729 09600	Holder Shaft Dial	1
	141 2 7319 24000	Lever Switch	1
	141 2 7519 21000	Shaft Dial	1
	141 2 7529 44600	Post Pulley	1
	141 2 8259 04700	Roller Dial	4
	141 2 8259 04800	Ball	1
	141 2 8519 11500	Spring Drum	1
	141 2 8519 55700	Lever Switch	1
	141 6 4729 18000	Label Fuse	1
	626 3 0907 20000	String 0.4	1
	103 3 1302 60818	Screw, Pan Hd. Tapping M2.6 x 8	1
	103 3 1302 60611	Screw, Pan Hd. Tapping M2.6 x 6	2
	110 3 3202 60082	Toothed Washer M2.6	1
	106 3 1103 00311	Nut M3.0	1
	101 3 1302 60611	Screw, Pan Hd. M2.6 x 6	1
	103 3 1303 01011	Screw, Pan Hd. Tapping M3.0 x 10	1
	103 3 1203 01211	Screw, pan Hd. Tapping M3.0 x 12	1
	103 3 1302 61211	Screw, Pan Hd. Tapping M2.6 x 12	2
	103 3 1303 01211	Screw, Pan Hd. Tapping M3.0 x 12	4
ELECTRICAL PARTS			
	4 1519 70210	Speaker	1
	4 1539 70460	Microphone	1
	4 2319 71490	Switch Leaf	1
	4 2319 72130	Switch Slide	1
	4 2359 70920	Ext Power Socket	1
	4 2359 72800	AC. Socket	1
	4 2449 70110	Antenna	1
	4 2519 71910	Trans Power	1
	4 5279 70671	Motor	1
CABINET			
	141 0 1119 38400	Cabinet Top Compl	1
	141 0 1119 38500	Cabinet Bottom Assy	1
	141 0 1719 04500	Handle Assy	1
	141 2 1249 11400	Lid Cassette	1
	141 2 1339 13700	Lid Battery	1
	141 2 1439 08700	Plate Jack	1
	141 2 2149 09500	Ribbon Battery	1
	141 2 2419 16100	Veil Switch	1
	141 2 3519 23400	Bracker Spring	1
	141 2 3679 20500	Bracket Socket	1

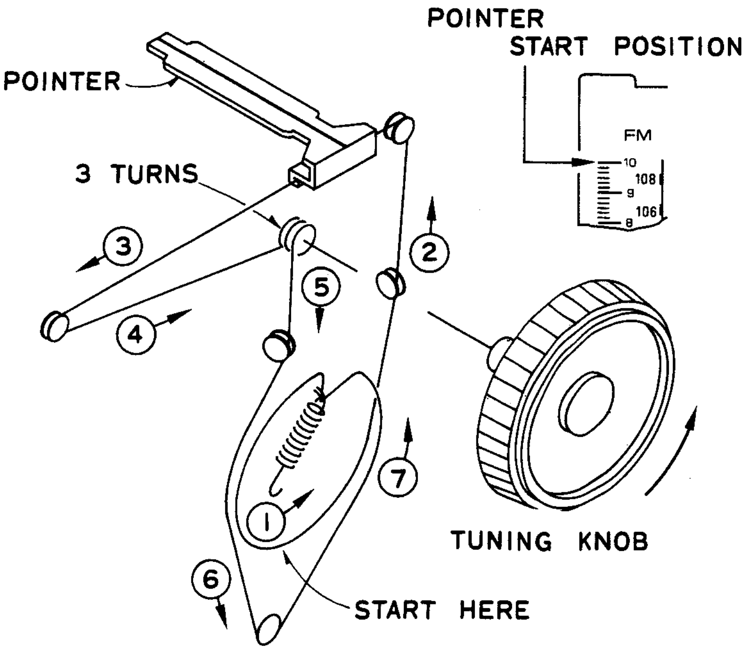
Key No.	Part No.	Description	Q'ty
CABINET			
	141 2 3729 00800	Bracket Fix Speaker	1
	141 2 3829 09400	Terminal Battery Anode	2
	141 2 3829 19900	Spring Battery	2
	141 2 3849 02200	Catcher Antenna	1
	141 2 4219 09700	Screw Handle	2
	141 2 4359 14800	Spacer Battery	1
	141 2 4419 05900	Cushion	2
	141 2 4459 13600	Pad Motor	1
	141 2 4459 13601	Pad Motor	1
	141 2 4469 02800	Cushion Battery A	2
	141 2 4469 17700	Cushion	2
	141 2 4569 05100	Ring	1
	141 2 8419 07101	Interlock	1
	141 2 8519 48000	Spring Interlock	1
	141 2 8519 51500	Spring Lid Cassette	1
	141 2 8539 13102	Spring Cassette Hold	2
	141 2 8539 21800	Spring Cassette	1
	141 2 4569 00500	Washer Battery Holder	1
	141 2 4729 01801	Lug	2
	141 2 4729 00200	Lug	1
	141 2 4729 03001	Lug	1
	141 2 4729 04600	Lug	1
	141 2 1639 13601	Knob Volume	1
	141 2 1639 13701	Knob Tuning	1
	141 2 1639 14301	Knob Volume	1
	141 2 1649 08501	Knob Switch	1
	141 2 1649 08601	Knob Switch	1
	141 2 4419 09100	Cushion	1
	141 2 8539 16300	Spring Knob Tuning	2
ACCESSORIES			
	4 2419 73810	Cassette	1
	4 2439 70310	Cord Power	1
	141 6 2519 08015	Poly Cover 80 x 150	1
	141 6 4119 52101	Instruction Manual	1
	141 6 4729 05800	Label Caution, Power Cord	1
	141 6 4729 07400	Label Caution, Inst B	1
	141 6 4729 16700	Label Caution, Handle	1
PACKAGE			
	141 6 1419 26002	Individual Carton	1
	141 6 1449 37900	Case, Styrol	1
	141 6 1449 38000	Case, Styrol	1
	141 6 1449 42000	Case;C, Styrol	1
	141 6 2519 13022	Poly Cover 130 x 220	1
	141 6 2519 18025	Poly Cover 180 x 250	1
	141 6 2519 32040	Poly Cover 320 x 400	1
	141 6 3319 09900	Pad Lid Caset	1
	141 6 4559 00100	Serial No Sheet	3

NOTES:
1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

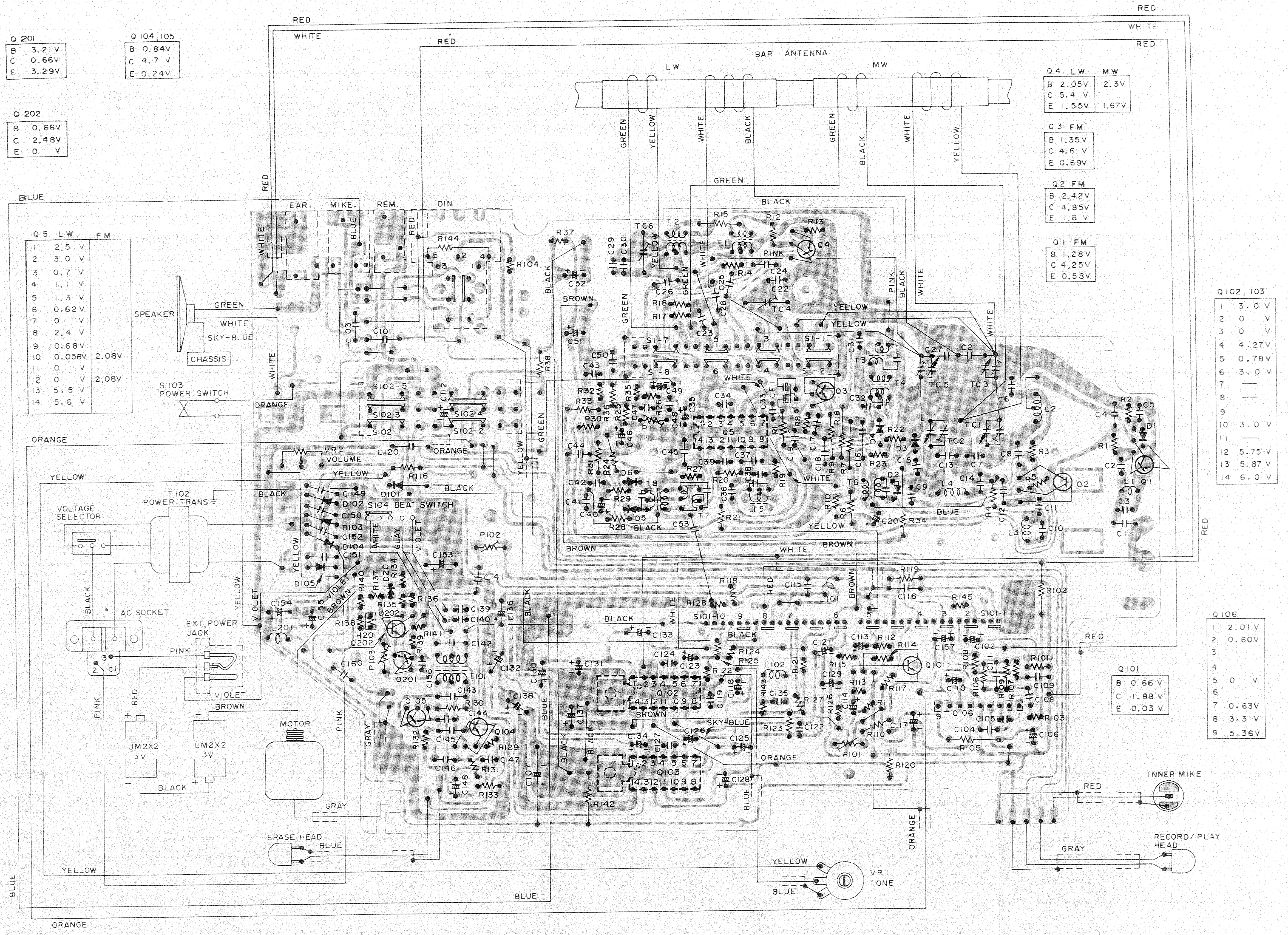
PARTS LOCATION


C148
C107
Q103
C128
C134
C126
C125
P101
C117
C106
Q104
Q105
T101
C138
C137
Q102
C118
C114
Q106
MW
Q201
P103
C132
C130
C131
L102
C129
Q101
C110
C123
C121
C113
C127
C102
C155
C154
H201
Q202
C136
C133
S101
RECORD / PLAY
SWITCH
L101
L201
C153
P102
C20
L3
BAR ANTENNA
L4
Q2
L1
C40
T8
T7
T5
T6
S104
BEAT SWITCH
VR2
C46
P1
Q5
P.V.C
L2
Q1
Q3
C46
C35
T4
S102
FUNCTION SWITCH
T3
S1 BAND SELECTOR
LW
C51
TC4
C52
TC6
T2
T1
Q4
EAR.
MIKE.
REM.
DIN

DIAL CORD STRINGING


POINTER
START POSITION
POINTER
FM
10
108
9
106
8
3 TURNS
③
②
⑤
④
⑦
①
⑥
TUNING KNOB
START HERE

WIRING DIAGRAM


BAR ANTENNA
LW
MW
SPEAKER
CHASSIS
S103 POWER SWITCH
EAR.
MIKE.
REM.
DIN
VR2 VOLUME
T102 POWER TRANS
VOLTAGE SELECTOR
AC SOCKET
EXT. POWER JACK
S104 BEAT SWITCH
UM2X2 3V
UM2X2 3V
MOTOR
ERASE HEAD
VR1 TONE
INNER MIKE
RECORD/PLAY HEAD
RED
WHITE
BLUE
GREEN
YELLOW
BLACK
PINK
SKY-BLUE
ORANGE
BROWN
VIOLET
GRAY
Q1
Q2
Q3
Q4
Q5
Q101
Q102
Q103
Q104
Q105
Q106
Q201
Q202
S1-1
S1-2
S1-7
S1-8
S101-1
S101-10
S102-1
S102-2
S102-3
S102-4
S102-5
TC1
TC2
TC3
TC4
TC5
TC6
T1
T2
T3
T4
T5
T6
T7
T8
T101
L1
L2
L3
L4
L102
L201
CF1
H201
P1
P101
P102
P103
D1
D2
D3
D4
D5
D6
D101
D102
D103
D104
D105
D201

Q 201

B	3.21V
C	0.66V
E	3.29V

Q 104,105

B	0.84V
C	4.7 V
E	0.24V

Q 202

B	0.66V
C	2.48V
E	0 V

Q5	LW	FM
1	2.5 V	
2	3.0 V	
3	0.7 V	
4	1.1 V	
5	1.3 V	
6	0.62V	
7	0 V	
8	2.4 V	
9	0.68V	
10	0.058V	2.08V
11	0 V	
12	0 V	2.08V
13	5.5 V	
14	5.6 V	

Q4	LW	MW
B	2.05V	2.3V
C	5.4 V	
E	1.55V	1.67V

Q3 FM

B	1.35V
C	4.6 V
E	0.69V

Q2 FM

B	2.42V
C	4.85V
E	1.8 V

Q1 FM

B	1.28V
C	4.25V
E	0.58V

Q102, 103

1	3.0 V
2	0 V
3	0 V
4	4.27V
5	0.78V
6	3.0 V
7	—
8	—
9	
10	3.0 V
11	—
12	5.75 V
13	5.87 V
14	6.0 V

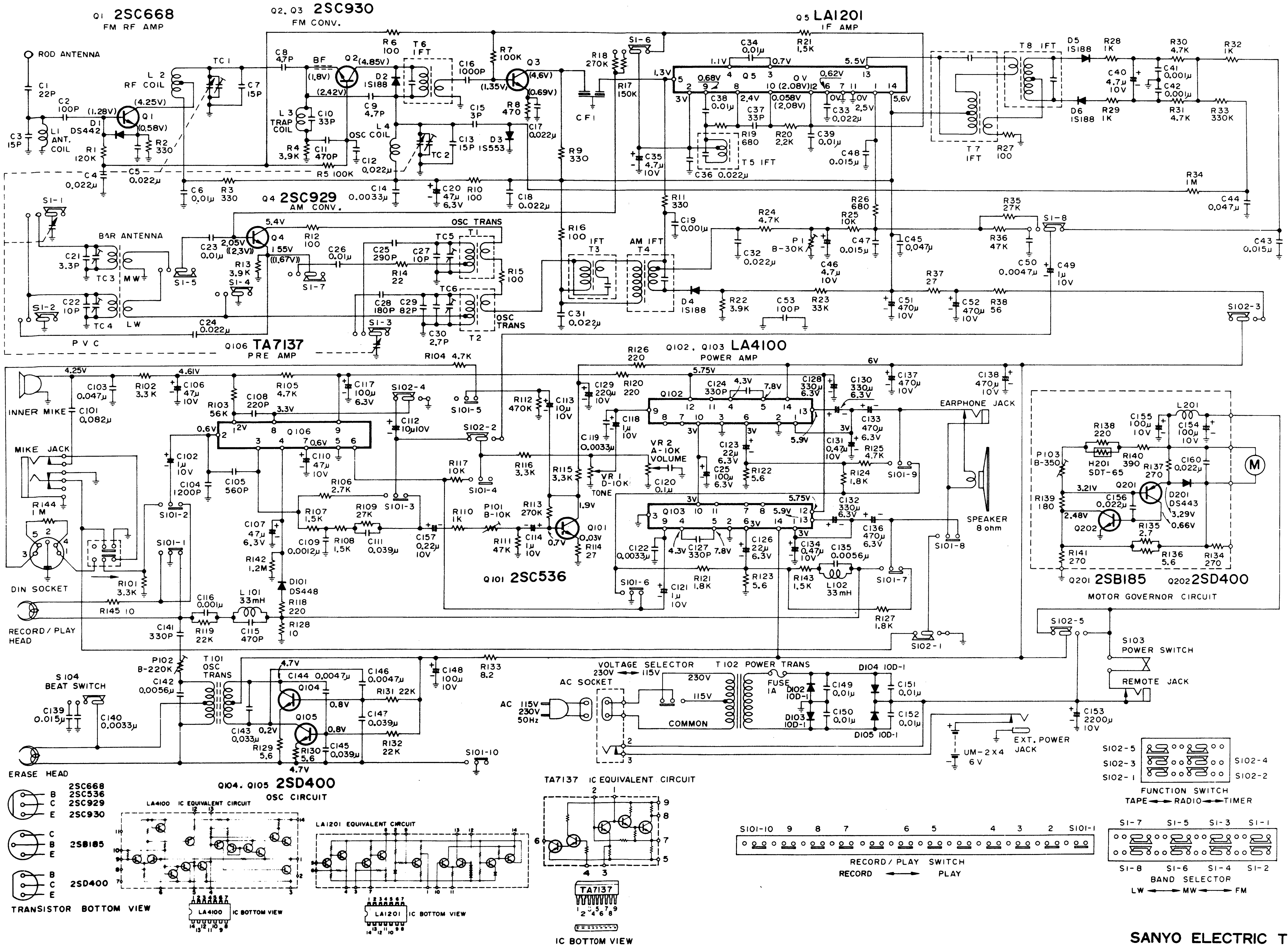
Q101

B	0.66 V
C	1.88 V
E	0.03 V

Q106

1	2.01 V
2	0.60V
3	
4	
5	0 V
6	
7	0.63V
8	3.3 V
9	5.36V

SCHEMATIC DIAGRAM


Q1 2SC668 FM RF AMP
Q2, Q3 2SC930 FM CONV.
Q5 LA1201 IF AMP
Q4 2SC929 AM CONV.
Q106 TA7137 PRE AMP
Q102, Q103 LA4100 POWER AMP
Q101 2SC536
Q104, Q105 2SD400 OSC CIRCUIT
Q201 2SB185 Q202 2SD400
MOTOR GOVERNOR CIRCUIT
ROD ANTENNA
BAR ANTENNA
RF COIL
ANT. COIL
TRAP COIL
OSC COIL
OSC TRANS
IFT
AM IFT
CFI
PVC
INNER MIKE
MIKE JACK
DIN SOCKET
RECORD / PLAY HEAD
ERASE HEAD
S104 BEAT SWITCH
VR 1 D-10K TONE
VR 2 A-10K VOLUME
EARPHONE JACK
SPEAKER 8 ohm
S103 POWER SWITCH
REMOTE JACK
VOLTAGE SELECTOR 230V 115V
T102 POWER TRANS
AC SOCKET
AC 115V 230V 50Hz
COMMON
FUSE 1A
EXT. POWER JACK
UM-2 X 4 6V
TA7137 IC EQUIVALENT CIRCUIT
LA4100 IC EQUIVALENT CIRCUIT
LA1201 EQUIVALENT CIRCUIT
IC BOTTOM VIEW
TRANSISTOR BOTTOM VIEW
2SC668 2SC536 2SC929 2SC930
2SB185
2SD400
FUNCTION SWITCH
TAPE RADIO TIMER
RECORD / PLAY SWITCH
RECORD PLAY
BAND SELECTOR
LW MW FM

SANYO ELECTRIC TRADING CO., LTD.

SANYO ELECTRIC CO. LTD. OSAKA, JAPAN

WM-1496 Jun./'76/1500 Printed in Japan

MODIFICATION NOTICE

SANYO

CASSETTE TAPE RECORDER

Chassis Nos. ____
Serial Nos. ____
Run Nos. ____
Date ____

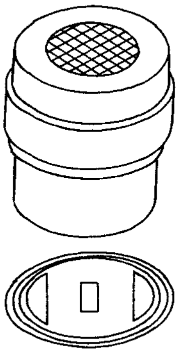
M 2528LU

Date Feb. 21, 1977 Issued by M. Mitani

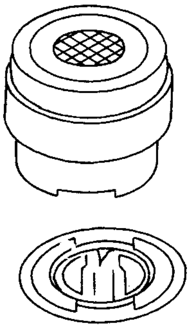
The following corrections should be made in the SERVICE MANUALS and PARTS (PRICE) LIST.

NEW MICROPHONE

Effective from the production in February 1977, we have started incorporating a new microphone (parts code: 4-1539-70550) into unit of the tape recorder.
The new microphone is installed in the tape recorder unit, using a microphone holder (rubber cushion). (See the photo.)
Since a two-core shield wire is adopted as the lead wire of the new microphone instead of a single-core shield wire previously used, the microphone is not interchangeable with the previous one.
When servicing, be sure to check which of the microphone is used and replace it accordingly.



Previously: Mic 4-1539-70460



Now 4-1539-70550 Mic
141-2-4459-18200 Holder Mic

REASON FOR MODIFICATION
A ..... Standardization
B ..... Change of materials
C ..... Improvement of reliability
D ..... Improvement of performance
E .....

SANYO ELECTRIC TRADING CO., LTD.
OSAKA, JAPAN

Printed in Japan KA/1000

WM-2096